

Cpc

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Bolt et al.)
Serial No: 10/072,527) Art Unit
Filed: February 5, 2002) 3654
For: STORAGE SYSTEM UTILIZING AN ACTIVE)
SUBSET OF DRIVES DURING DATA)
STORAGE AND RETRIEVAL OPERATIONS)
Examiner: Kevin Verbrugge)
Patent No: 6,892,275 B2)
Issue Date: May 10, 2005)
Attorney Docket: Q02-1037-US1 / 11198.82)

Certificate
JUN 30 2005
of Correction

REQUEST FOR A CERTIFICATE OF CORRECTION
UNDER 37 C.F.R. § 1.322

Attention Certificate of Correction Branch
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In accordance with the provisions of 37 C.F.R. § 1.322, which implement 35 U.S.C. 254, the Commissioner is respectfully requested to issue a Certificate of Correction in the above-identified patent, to correct mistakes inadvertently made by the Patent and Trademark Office in the printing of the Letters Patent.

It appears that the Examiner's Amendment, which incorporated claim amendments

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sent to the examiner in an email on December 2, 2004, was not entered. The Examiner's Amendment in the Notice of Allowability states that "The application has been amended as follows: Replace all pending claims with the claims presented in the attached email from Mr. Broder". A copy of the email and the Examiner's Amendment are attached herewith.

The enclosed Patent and Trademark Office Form PTO/SB/44 reflects the desired corrections. More specifically, in Claim 1, Column 11, line 16, please insert ", including a first disk drive and a second disk drive, the first disk drive being in a write mode wherein data is being transferred from the host system to the first disk drive, the second disk drive having a rotatable storage disk, the second disk drive changable between a write mode wherein data is being transferred from the host system to the second disk drive and a stand-by mode wherein the storage disk is not rotating" after the phrase --the housing--. In Claim 1, column 11, line 18, please delete the word "the" after the phrase --that controls--. In Claim 1, Column 11, line 18, please insert "whether the second disk drive is in the write mode or the stand-by mode based upon the temperature of the first disk drive" after the phrase --that controls the--. In Claim 1, Column 11, lines 18-20, please delete the phrase "disk drives, wherein at least two of the disk drives are in different modes during the transfer of data to at least one of the disk drives". In Claim 13, Column 11, line 65, please insert "whether one of" after the word --controlling--. In Claim 13, Column 11, line 65, please insert "is in one of a write mode and a stand-by mode based upon the temperature of at least one other" after the phrase --disk drives--. In Claim 13, Column 11, lines 65-67,

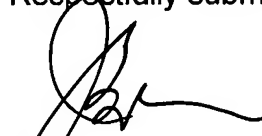
please delete "so that at least two of the disk drives are in different modes during the transfer of data to at least one". In Claim 13, Column 11, line 67, please insert "within the housing" after the phrase --disk drives--. In Claim 14, Column 12, line 1, please delete the "," after the word --claim--. In Claim 14, Column 12, line 2, please delete the phrase "the disk drives". In Claim 15, Column 12, line 5, please delete the "," after the phrase --claim 13--. In Claim 15, Column 12, line 6, please delete the phrase "the disk drives". In Claim 15, Column 12, line 7, please delete the word "a" and substitute therefore --the--. In Claim 16, Column 12, line 9, please delete the "," after the phrase --claim 13--. In Claim 16, Column 12, line 10, please delete the phrase "the disk drives". In Claim 16, Column 12, line 11, please delete the word "a" and substitute therefore --the--. In Claim 17, Column 12, line 13, please delete the "," after the phrase --claim 13--. In Claim 17, Column 12, line 14, please delete the phrase "the disk drives". In Claim 17, Column 12, line 15, please delete the word "a" and substitute therefore --the--. In Claim 18, Column 12, line 17, please delete the "," after the phrase --claim 13--. In Claim 18, Column 12, line 20, please delete the phrase "the disk drives". In Claim 18, Column 12, line 21, please delete the word "a" and substitute therefore --the--. In Claim 18, Column 12, line 22, please insert the word "are" after the phrase --the rows--. In Claim 18, Column 12, line 22, please delete the word "a" and substitute therefore --the--. In Claim 19, Column 12, line 23, please delete the "," after the phrase --claim 13--. In Claim 19, Column 12, line 26, please delete the phrase "the disk drives". In Claim 19, Column 12, line 28, please insert the

word "are" after the phrase --of the rows--. In Claim 20, Column 12, line 29, please delete the "," after the phrase --claim 13--. In Claim 20, Column 12, line 32, please delete the phrase "the disk drives". In Claim 20, Column 12, line 33, please delete the word "a" and substitute therefore --the--. In Claim 20, Column 12, line 34, please insert the word "are" after the phrase --of the rows--. In Claim 20, Column 12, line 34, please delete the word "a" and substitute therefore --the--. In Claim 21, Column 12, line 35, please delete the "," after the phrase --claim 13--. In Claim 21, Column 12, line 38, please delete the phrase "the disk drives". In Claim 21, Column 12, line 39, please delete the word "a" and substitute therefore --the--. In Claim 21, Column 12, line 40, please insert the word "are" after the phrase --rows--. In Claim 22, Column 12, line 41, please delete the "," after the phrase --claim 1--. In Claim 22, Column 12, line 44, please delete the word "a" and substitute therefore --the--. In Claim 23, Column 12, line 48, please delete the "," after the phrase --claim 22--. In Claim 24, Column 12, line 56, please delete the word "and". In Claim 24, Column 12, line 57, please insert ", and a third disk drive having a rotatable third storage disk" after the phrase --storage disk--. In Claim 24, Column 12, line 63, please insert ", and the third disk drive is in a write mode wherein data is transferred from the host system to the third storage disk, the controller controlling the mode of the second disk drive based upon the temperature of the third disk drive" after the phrase --first mode--. In Claim 25, Column 12, line 64, please delete the "," after the phrase --claim 24--. In Claim 26, Column 12, line 67, please delete the "," after the phrase --claim 25--. In Claim 27,

Column 13, line 1, please delete the "," after the phrase --claim 24--. In Claim 28, Column 13, line 18, please insert "whether one of" after the phrase --that controls--. In Claim 28, Column 13, line 18, please delete the phrase "number of". In Claim 28, Column 13, line 18, please delete the phrase "that are". In Claim 28, Column 13, line 19, please insert the word "is" before the phrase --in one of--. In Claim 28, Column 13, line 20, please insert the phrase "at least one other of" after the phrase --temperature of--. In Claim 28, Column 13, lines 20-21, please delete the phrase "in the write mode" and substitute therefore --within the housing--. In Claim 29, Column 13, line 22, please delete the "," after the phrase --claim 28--. In Claim 30, Column 13, line 24, please delete the "," after the phrase --claim 28--. In Claim 31, Column 13, line 30, please delete the "," after the phrase --claim 28--. In Claim 32, Column 14, line 1, please delete the "," after the phrase --claim 28--. In Claim 33, Column 14, line 3, please delete the "," after the phrase --claim 28--. In Claim 34, Column 14, line 9, please delete the "," after the phrase --claim 28--. In Claim 35, Column 14, line 16, please delete the "," after the phrase --claim 28--. In Claim 36, Column 14, line 23, please delete the "," after the phrase --claim 28--. Because the error incurred through the fault of the Patent Office, no additional fee is believed to be required.

DATED this the 24th day of June, 2005

Respectfully submitted,

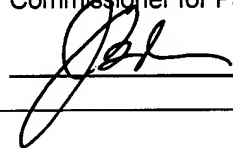


JAMES P. BRODER
Attorney for Applicant
Registration No. 43,514

The Law Office of Steven G. Roeder
5560 Chelsea Avenue
La Jolla, CA 92037

CERTIFICATE OF MAILING UNDER CFR §1.8

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail, postage prepaid, in an envelope addressed to: Attention Certificate of Corrections Branch, Commissioner for Patents, PO Box 1450, Alexandria, VA 22313-1450 on June 24, 2005.



JAMES P. BRODER, Attorney for Applicant--Registration No. 43,514

**UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION**Page 1 of 5

PATENT NO. : 6,892,275 B2

APPLICATION NO.: 10/072,527

ISSUE DATE : May 10, 2005

INVENTOR(S) : Bolt, et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In Claim 1, Column 11, line 16, please insert ", including a first disk drive and a second disk drive, the first disk drive being in a write mode wherein data is being transferred from the host system to the first disk drive, the second disk drive having a rotatable storage disk, the second disk drive changable between a write mode wherein data is being transferred from the host system to the second disk drive and a stand-by mode wherein the storage disk is not rotating" after the phrase --the housing--.

In Claim 1, Column 11, line 18, please insert "whether the second disk drive is in the write mode or the stand-by mode based upon the temperature of the first" after the phrase --that controls--.

In Claim 1, Column 11, lines 18-20, please delete the phrase "disk drives, wherein at least two of the disk drives are in different modes during the transfer of data to at least one of the disk drives".

In Claim 13, Column 11, line 65, please insert "whether one of" after the word --controlling--.

In Claim 13, Column 11, line 65, please insert "is in one of a write mode and a stand-by mode based upon the temperature of at least one other" after the phrase --disk drives--.

In Claim 13, Column 11, lines 65-67, please delete "so that at least two of the disk drives are in different modes during the transfer of data to at least one".

In Claim 13, Column 11, line 67, please insert "within the housing" after the phrase --disk drives--.

In Claim 14, Column 12, line 1, please delete the "," after the word --claim--.

In Claim 14, Column 12, line 2, please delete the phrase "the disk drives".

MAILING ADDRESS OF SENDER (Please do not use customer number below):

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5560 Chelsea Ave.
La Jolla, CA 92037

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

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PATENT NO. : 6,892,275 B2

APPLICATION NO.: 10/072,527

ISSUE DATE : May 10, 2005

INVENTOR(S) : Bolt et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In Claim 15, Column 12, line 5, please delete the "," after the phrase --claim 13--.

In Claim 15, Column 12, line 6, please delete the phrase "the disk drives".

In Claim 15, Column 12, line 7, please delete the word "a" and substitute therefore --the--.

In Claim 16, Column 12, line 9, please delete the "," after the phrase --claim 13--.

In Claim 16, Column 12, line 10, please delete the phrase "the disk drives".

In Claim 16, Column 12, line 11, please delete the word "a" and substitute therefore --the--.

In Claim 17, Column 12, line 13, please delete the "," after the phrase --claim 13--.

In Claim 17, Column 12, line 14, please delete the phrase "the disk drives".

In Claim 17, Column 12, line 15, please delete the word "a" and substitute therefore --the--.

In Claim 18, Column 12, line 17, please delete the "," after the phrase --claim 13--.

In Claim 18, Column 12, line 20, please delete the phrase "the disk drives".

In Claim 18, Column 12, line 21, please delete the word "a" and substitute therefore --the--.

In Claim 18, Column 12, line 22, please insert the word "are" after the phrase --the rows--.

In Claim 18, Column 12, line 22, please delete the word "a" and substitute therefore --the--.

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UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

Page 3 of 5

PATENT NO. : 6,892,275 B2

APPLICATION NO.: 10/072,527

ISSUE DATE : May 10, 2005

INVENTOR(S) : Bolt et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In Claim 19, Column 12, line 23, please delete the "," after the phrase --claim 13--.

In Claim 19, Column 12, line 26, please delete the phrase "the disk drives".

In Claim 19, Column 12, line 28, please insert the word "are" after the phrase --of the rows--.

In Claim 20, Column 12, line 29, please delete the "," after the phrase --claim 13--.

In Claim 20, Column 12, line 32, please delete the phrase "the disk drives".

In Claim 20, Column 12, line 33, please delete the word "a" and substitute therefore --the--.

In Claim 20, Column 12, line 34, please insert the word "are" after the phrase --of the rows--.

In Claim 20, Column 12, line 34, please delete the word "a" and substitute therefore --the--.

In Claim 21, Column 12, line 35, please delete the "," after the phrase --claim 13--.

In Claim 21, Column 12, line 38, please delete the phrase "the disk drives".

In Claim 21, Column 12, line 39, please delete the word "a" and substitute therefore --the--.

In Claim 21, Column 12, line 40, please insert the word "are" after the phrase --rows--.

In Claim 22, Column 12, line 41, please delete the "," after the phrase --claim 1--.

In Claim 22, Column 12, line 44, please delete the word "a" and substitute therefore --the--.

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**UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION**Page 4 of 5

PATENT NO. : 6,892,275 B2

APPLICATION NO.: 10/072,527

ISSUE DATE : May 10, 2005

INVENTOR(S) : Bolt, et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In Claim 23, Column 12, line 48, please delete the "," after the phrase --claim 22--.

In Claim 24, Column 12, line 56, please delete the word "and".

In Claim 24, Column 12, line 57, please insert ", and a third disk drive having a rotatable third storage disk" after the phrase --storage disk--.

In Claim 24, Column 12, line 63, please insert ", and the third disk drive is in a write mode wherein data is transferred from the host system to the third storage disk, the controller controlling the mode of the second disk drive based upon the temperature of the third disk drive" after the phrase --first mode--.

In Claim 25, Column 12, line 64, please delete the "," after the phrase --claim 24--.

In Claim 26, Column 12, line 67, please delete the "," after the phrase --claim 25--.

In Claim 27, Column 13, line 1, please delete the "," after the phrase --claim 24--.

In Claim 28, Column 13, line 18, please insert "whether one of" after the phrase --that controls--.

In Claim 28, Column 13, line 18, please delete the phrase "number of".

In Claim 28, Column 13, line 18, please delete the phrase "that are".

In Claim 28, Column 13, line 19, please insert the word "is" before the phrase --in one of--.

In Claim 28, Column 13, line 20, please insert the phrase "at least one other of" after the phrase --temperature of--.

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La Jolla, CA 92037

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UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

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PATENT NO. : 6,892,275 B2

APPLICATION NO.: 10/072,527

ISSUE DATE : May 10, 2005

INVENTOR(S) : Bolt et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In Claim 28, Column 13, lines 20-21, please delete the phrase "in the write mode" and substitute therefore --within the housing--.

In Claim 29, Column 13, line 22, please delete the "," after the phrase --claim 28--.

In Claim 30, Column 13, line 24, please delete the "," after the phrase --claim 28--.

In Claim 31, Column 13, line 30, please delete the "," after the phrase --claim 28--.

In Claim 32, Column 14, line 1, please delete the "," after the phrase --claim 28--.

In Claim 33, Column 14, line 3, please delete the "," after the phrase --claim 28--.

In Claim 34, Column 14, line 9, please delete the "," after the phrase --claim 28--.

In Claim 35, Column 14, line 16, please delete the "," after the phrase --claim 28--.

In Claim 36, Column 14, line 23, please delete the "," after the phrase --claim 28--.

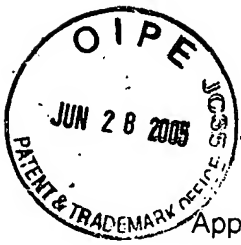
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Application/Control Number: 10/072,527

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Art Unit: 2188

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with James P. Broder, Reg. No. 43,514 on 12/2/02.

The application has been amended as follows:

Replace all pending claims with the claims presented in the attached email from Mr. Broder. The attached claims were submitted after a telephone interview as a proposed amendment and accepted by the Examiner. They are being attached to this Examiner's Amendment to advance prosecution. The attachment should not be entered as an after-final amendment.

Conclusion

Any inquiry concerning a communication from the Examiner should be directed to the Examiner by phone at (571) 272-4214.

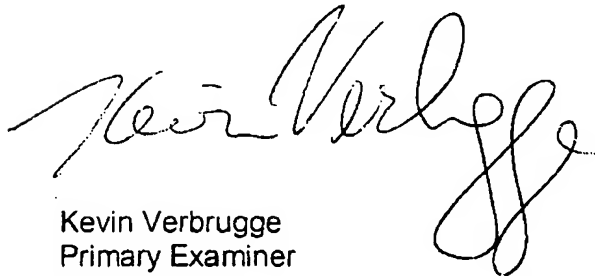
Any response to this action should be labeled appropriately (serial number, Art Unit 2188, and After-Final, Official, or Draft) and mailed to Commissioner for Patents, Washington, D.C. 20231 or faxed to (703) 872-9306.

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Application/Control Number: 10/072,527
Art Unit: 2188

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197.



Kevin Verbrugge
Primary Examiner
Art Unit 2188

JUL - 6 2005

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Verbrugge, Kevin

From: James Broder [jbroder@san.rr.com]
Sent: Thursday, December 02, 2004 3:37 PM
To: Verbrugge, Kevin
Subject: 10/072,527 Amendment / Response to Office Action

Examiner Verbrugge,

The revised amendment is attached. Thanks for your assistance. Let me know if you have any other questions or concerns.

James Broder
Law Office of Steven G. Roeder
858.487.4077

12/2/04

JUL - 6 2005

REQUESTED

PATENT – Reply under 37 CFR 1.116
Expedited Procedure – Examining Group 2188

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	Bolt, et al.)
)
Serial No:	10/072,527) Art Unit
) 2188
Filed:	February 5, 2002)
)
For:	STORAGE SYSTEM UTILIZING AN ACTIVE SUBSET OF DRIVES DURING DATA STORAGE AND RETRIEVAL OPERATIONS)
)
Examiner:	Verbrugge, Kevin)
)
Attorney Docket:	Q02-1037-US1 / 11198.82)

AMENDMENT AND RESPONSE TO FINAL REJECTION
PURSUANT TO 37 C.F.R. § 1.116

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This Amendment and Response is to the Final Office Action dated October 12, 2004, should be accorded expedited treatment because it is filed within two months of the date of the Final Office Action. The Applicants have complied with the provisions of 37 C.F.R. § 1.116, and respectfully request that this Amendment and Response be considered after final rejection.

CERTIFICATE OF MAILING UNDER 37 CFR §1.8

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class, postage prepaid mail, in an envelope addressed to: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this the ___ day of December, 2004.

JAMES P. BRODER, Attorney for Applicant--Registration No. 43,514

JUL - 6 2005

-1-

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Current Status of All Claims in the Application:

1. (Currently Amended) A storage system that stores data from a host system, the storage system comprising:

a housing;

a plurality of disk drives positioned within the housing, including a first disk drive and a second disk drive, the first disk drive being in a write mode wherein data is being transferred from the host system to the first disk drive, the second disk drive having a rotatable storage disk, the second disk drive changable between a write mode wherein data is being transferred from the host system to the second disk drive and a stand-by mode wherein the storage disk is not rotating; and

a controller that controls the whether the second disk drive is in the write mode or the stand-by mode based upon the temperature of the first disk drive drives, ~~wherein at least two of the disk drives are in different modes during the transfer of data to at least one of the disk drives.~~

2. (Original) The storage system of claim 1 wherein the controller directs data to a first subset of disk drives and a second subset of disk drives simultaneously.

3. (Original) The storage system of claim 2 wherein at least one of the subsets includes five disk drives.

4. (Original) The storage system of claim 2 wherein the controller directs the data to each subset using parity protection.

5. (Original) The storage system of claim 1 wherein at least one third of the disk drives are in a stand-by mode during the transfer of data to at least one of the disk drives.

6. (Original) The storage system of claim 1 wherein at least one half of the disk drives are in a stand-by mode during the transfer of data to at least one of the disk drives.

7. (Original) The storage system of claim 1 wherein at least two thirds of the disk drives are in a stand-by mode during the transfer of data to at least one of the disk drives.

8. (Previously Presented) The storage system of claim 1 further comprising a first drive rail that retains the disk drives, wherein the disk drives are arranged in a first row of disk drives and a second row of disk drives, and wherein the disk drives in the first row are in a write mode while the disk drives in the second row are in a standby mode.

9. (Previously Presented) The storage system of claim 1 further comprising a first drive rail that retains the disk drives, wherein the disk drives are arranged in a first row of disk drives, a second row of disk drives, and a third row of disk drives, and wherein the disk drives in the first and second rows are in a write mode while the disk drives in the third row are in a standby mode.

10. (Previously Presented) The storage system of claim 1 further comprising a first drive rail that retains the disk drives, wherein the disk drives are arranged in a first row of disk drives, a second row of disk drives and a third row of disk drives, and wherein the disk drives in the first row are in a write mode while the disk drives in the second and third rows are in a standby mode.

11. (Previously Presented) The storage system of claim 1 wherein the disk drives are arranged into six rows of disk drives, and wherein the disk drives in two of the rows are in a write mode while the disk drives in four of the rows are in a standby mode.

12. (Canceled)

13. (Original) A combination comprising a host system and the storage system of claim 1.

14-29. (Canceled)

13 30. (Currently Amended) A method for storing data from a host system, the method comprising the steps of:

providing a plurality of disk drives positioned within a housing; and

controlling whether one of the disk drives is in one of a write mode and a stand-by mode based upon the temperature of at least one other ~~so that at least two of the disk drives are in different modes during the transfer of data to at least one of the disk drives~~ within the housing.

31. (Currently Amended) The method of claim 30 wherein the step of controlling ~~the disk drives~~ includes simultaneously directing data to a first subset of disk drives and a second subset of disk drives.

32. (Currently Amended) The method of claim 30 wherein the step of controlling ~~the disk drives~~ includes placing at least one third of the disk drives in ~~the~~ stand-by mode during the transfer of data to at least one of the disk drives.

33. (Currently Amended) The method of claim 30 wherein the step of controlling ~~the disk drives~~ includes placing at least one half of the disk drives in ~~the~~ stand-by mode during the transfer of data to at least one of the disk drives.

34. (Currently Amended) The method of claim 30 wherein the step of controlling ~~the disk drives~~ includes placing at least two-thirds of the disk drives in ~~the~~ stand-by mode during the transfer of data to at least one of the disk drives.

35. (Currently Amended) The method of claim 30 wherein the step of providing a plurality of disk drives includes the step of arranging the disk drives into at least two rows, and wherein the step of controlling ~~the disk drives~~ includes placing the disk drives in at least one of the rows in ~~[[a]] the~~ write mode while the disk drives in at least one of the rows are in ~~[[a]] the~~ standby mode.

36. (Currently Amended) The method of claim 30 the step of providing a plurality of disk drives includes the step of arranging the disk drives into at least three rows, and wherein the step of controlling ~~the disk drives~~ includes placing the disk drives in at least two of the rows in the write mode while the disk drives in at least one of the rows are in the standby mode.

37. (Currently Amended) The method of claim 30 wherein the step of providing a plurality of disk drives includes the step of arranging the disk drives into at least three rows, and wherein the step of controlling ~~the disk drives~~ includes placing the disk drives in at least one of the rows in ~~[[a]] the~~ write mode while the disk drives in at least two of the rows are in ~~[[a]] the~~ standby mode.

38. (Currently Amended) The method of claim 30 wherein the step of providing a plurality of disk drives includes the step of arranging the disk drives into six rows, and wherein the step of controlling ~~the disk drives~~ includes placing the disk drives in two of the rows in ~~[[a]] the~~ write mode while the disk drives in four of the rows are in the standby mode.

39. (Currently Amended) The storage system of claim 1 wherein the plurality of disk drives includes a first disk drive and a second disk drive, each disk drive including a rotatable storage disk, and wherein the first disk drive is in ~~[[a]] the~~ write mode while another of the disk drives is in an idle mode that allows the storage disk of the second disk drive to rotate without any data being transferred to the second storage

disk.

40. (Previously Presented) The storage system of claim 39 wherein the first disk drive and the second disk drive have a substantially similar structure.

41. (Currently Amended) A storage system that stores data from a host system, the storage system comprising:

a housing;

a plurality of disk drives positioned within the housing including a first disk drive having a rotatable first storage disk, and a second disk drive having a rotatable second storage disk, and a third disk drive having a rotatable third storage disk; and

a controller that controls the disk drives so that the first disk drive is in a first mode wherein the first storage disk rotates without data being transferred from the host system to the first storage disk, while the second disk drive is in a second mode that is different than the first mode, and the third disk drive is in a write mode wherein data is transferred from the host system to the third storage disk, the controller controlling the mode of the second disk drive based upon the temperature of the third disk drive.

42. (Previously Presented) The storage system of claim 41 wherein the second mode is a write mode wherein data is being transferred to the second storage disk.

43. (Previously Presented) The storage system of claim 42 wherein the number of disk drives that are in the write mode is dependent upon the temperature of the disk drives that are in the write mode.

44. (Previously Presented) The storage system of claim 41 wherein the second mode is a stand-by mode wherein the second storage disk is not rotating.

45. (Currently Amended) A storage system that stores data from a host system, the storage system comprising:

a housing;

a plurality of disk drives positioned within the housing including a first subset of at least two disk drives and a second subset of at least two disk drives, each disk drive of the first subset including a rotatable first storage disk, each disk drive of the second subset including a rotatable second storage disk, each disk drive in the first subset being in a write mode wherein data is transferred between the host system and the first subset of disk drives, each disk drive in the second subset being in a stand-by mode wherein each of the second storage disks is not rotating; and

a controller that controls whether one of the ~~number of~~ disk drives that are is in one of the write mode and the stand-by mode based upon the temperature of at least one other of the disk drives ~~in the write mode~~ within the housing.

46. (Previously Presented) The storage system of claim 45 wherein the disk drives have a substantially similar structure to each other.

47. (Previously Presented) The storage system of claim 45 wherein the plurality of disk drives includes a third subset of at least two disk drives each including a rotatable third storage disk, each disk drive of the third subset being in an idle mode wherein each third storage disk rotates while no data is being transferred between the host system and the third subset of disk drives.

48. (Previously Presented) The storage system of claim 45 wherein at least one third of the disk drives are in the stand-by mode.

49. (Previously Presented) The storage system of claim 45 wherein at least two thirds of the disk drives are in the stand-by mode.

50. (Previously Presented) The storage system of claim 45 further comprising a first drive rail that retains the disk drives, wherein the disk drives are arranged in a first row of disk drives and a second row of disk drives, and wherein the disk drives in the first row are in the write mode while the disk drives in the second row are in the standby mode.

51. (Previously Presented) The storage system of claim 45 further comprising a first drive rail that retains the disk drives, wherein the disk drives are arranged in a first row of disk drives, a second row of disk drives, and a third row of disk drives, and wherein the disk drives in the first and second rows are in the write mode while the disk drives in the third row are in the standby mode.

52. (Previously Presented) The storage system of claim 45 further comprising a first drive rail that retains the disk drives, wherein the disk drives are arranged in a first row of disk drives, a second row of disk drives and a third row of disk drives, and wherein the disk drives in the first row are in the write mode while the disk drives in the second and third rows are in the standby mode.

53. (Previously Presented) The storage system of claim 45 wherein the disk drives are arranged into six rows of disk drives, and wherein the disk drives in two of the rows are in the write mode while the disk drives in four of the rows are in a standby mode.

54. (Previously Presented) A combination comprising a host system and the storage system of claim 45.

REMARKS

Claims 1-11, 13 and 30-54 are pending in the above-captioned patent application after this amendment. Claims 1-13 and 30-54 have been rejected. Claims 35-38 were objected to. Claims 1, 30-39, 41 and 45 have been amended and claim 12 has been canceled without prejudice, all for the purpose of expediting the patent application process in a manner consistent with the goals of the Patent Office pursuant to 65 Fed. Reg. 54603 (September 8, 2000), even though the Applicants believe that the previously pending claims were allowable.

Support for the amendments to the claims can be found throughout the originally filed application, including the claims, the drawings and the specification. More specifically, support for the amendments to claims 1, 30-39, 41 and 45 can be found at least in Figures 1A-5, in claims 1-7, 12, 43 and 45, and in the specification at page 11, line 8 through page 16, line 12.

No new matter is believed to have been added by this amendment. Consideration of the pending application is respectfully requested.

Interview Summary

On November 30, 2004, the undersigned attorney for the applicant conducted an interview with the Examiner, Kevin Verbrugge. During the interview, the cited references were discussed. Language was discussed which would place claim 45 in condition for allowance. Further, it was agreed that if this language could be incorporated into independent claims 1, 30 and 41 without redundancy, these claims would also be in condition for allowance. The undersigned attorney has amended independent claims 1, 30, 41 and 45 in accordance with the discussion during the interview. The applicant and the undersigned attorney wish to thank the Examiner for his time and assistance during the interview.

Objections to the Claims

Claims 35-38 were objected to based on a repetitive typographical error. As provided above, claims 35-38 were amended to correct this error. As such, the objection

is believed to have been overcome.

Rejections Under 35 U.S.C. § 102

Claims 1, 5-7, 13, 30, 32-34, 39-42 and 44 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,666,538 to DeNicola. As provided above, claims 1, 30-39 and 41 were amended in accordance with the interview of November 30, 2004. Consequently, a rejection of amended claims 1, 30-39 and 41 under 35 U.S.C. § 102(b) that is based on DeNicola is believed to be unsupported. Additionally, any implied rejection under 35 U.S.C. § 103(a) is also believed to be unsupported. Further, because claims 5-7, 13, 39 and 40 depend from amended claim 1, because claims 32-34 depend from claim 30, and because claims 42 and 44 depend from claim 41, a rejection of these claims based on DeNicola is also believed to be unsupported. Accordingly, claims 1, 5-7, 13, 30, 32-34, 39-42 and 44 are believed to be allowable.

The Patent Office states in its Office Action, "DeNicola does not teach that the number of disk drives in any particular mode depends on the temperature of the disk drives in the write mode. He teaches that the number of disk drives in any particular mode depends on the disk access history and the desire for power savings. ... These variables are controlled by DeNicola's monitoring hardware and processes and are adjustable depending on user preferences."

Further, in another section of the Office Action, the Patent Office cites Dunstan (US 5,560,022) for the proposition that "another reason to spin down disks besides power savings is heat reduction." (Col. 6, lines 38-40). However, Dunstan states that "a disk drive often requires extra time to spin-up before it can be accessed after having been spun-down to reduce power consumption or heat." In other words, Dunstan teaches that to reduce power consumption or heat to a particular drive, that drive can be spun down. However, neither Dunstan, DeNicola, nor a combination of these references teaches that one or more drives within a housing can be spun down based on the temperature of other drives within the housing.

In contrast to DeNicola, amended claim 1 of the present application is directed toward a storage system that requires "a housing; a plurality of disk drives positioned

within the housing, including a first disk drive and a second disk drive, the first disk drive being in a write mode wherein data is being transferred from the host system to the first disk drive, the second disk drive having a rotatable storage disk, the second disk drive changable between a write mode wherein data is being transferred from the host system to the second disk drive and a stand-by mode wherein the storage disk is not rotating; and a controller that controls the whether the second disk drive is in the write mode or the stand-by mode based upon the temperature of the first disk drive." These features are not taught or suggested by the cited references, either individually or in combination. Therefore, a rejection of amended claim 1 under 35 U.S.C. §102(b) or §103(a) would be unsupported. Further, because claims 5-7, 13, 39 and 40 depend directly or indirectly from claim 1, a rejection of these claims under 35 U.S.C. § 102(b) or §103(a) is also unsupported. Thus, these claims should be allowed.

Further, amended claim 30 is directed toward a method for storing data that requires the steps of: "providing a plurality of disk drives positioned within a housing; and controlling whether one of the disk drives is in one of a write mode and a stand-by mode based upon the temperature of at least one other of the disk drives within the housing." These steps are not taught or suggested by the cited references. Therefore, a rejection of amended claim 30 under 35 U.S.C. §102(b) or §103(a) would be unsupported. Further, because claims 32-34 depend directly or indirectly from claim 30, a rejection of these claims under 35 U.S.C. § 102(b) or §103(a) is also unsupported. Thus, these claims should be allowed.

Amended claim 41 is directed toward a storage system that requires "a housing; a plurality of disk drives positioned within the housing including a first disk drive having a rotatable first storage disk, a second disk drive having a rotatable second storage disk, and a third disk drive having a rotatable third storage disk; and a controller that controls the disk drives so that the first disk drive is in a first mode wherein the first storage disk rotates without data being transferred from the host system to the first storage disk, while the second disk drive is in a second mode that is different than the first mode, and the third disk drive is in a write mode wherein data is transferred from the host system to the third storage disk, the controller controlling the second mode

based upon the temperature of the third disk drive." These features are not taught or suggested by the cited references. Therefore, a rejection of amended claim 41 under 35 U.S.C. §102(b) or §103(a) would be unsupported. Further, because claims 42 and 44 depend directly or indirectly from claim 41, a rejection of these claims under 35 U.S.C. § 102(b) or §103(a) is also unsupported. Thus, these claims should be allowed:

Rejections Under 35 U.S.C. § 103

Claims 2-4, 8-12, 31 and 35-38 are rejected under 35 U.S.C. § 103(a) as being unpatentable over DeNicola. Further, claims 43 and 45-54 are rejected under 35 U.S.C. § 103(a) as being unpatentable over DeNicola in view of Dunstan. As provided above, claim 12 has been canceled without prejudice. Therefore the rejection of claim 12 is believed to be moot.

Additionally, as provided above, claim 1 is believed to be allowable. Because claims 2-4 and 8-12 depend directly or indirectly from claim 1, these claims should also be allowable. Further, claim 30 is believed to be allowable as provided above. Because claims 31 and 35-38 depend from claim 30, they are also believed to be allowable. Moreover, claim 41 is believed to be allowable, as indicated above. Because claim 43 depends from claim 41, it is also believed to be allowable.

Claim 45 has been amended as provided above. In contrast to the cited references, amended claim 45 requires "a housing; a plurality of disk drives positioned within the housing including a first subset of at least two disk drives and a second subset of at least two disk drives, each disk drive of the first subset including a rotatable first storage disk, each disk drive of the second subset including a rotatable second storage disk, each disk drive in the first subset being in a write mode wherein data is transferred between the host system and the first subset of disk drives, each disk drive in the second subset being in a stand-by mode wherein each of the second storage disks is not rotating; and a controller that controls whether one of the disk drives that are in one of the write mode and the stand-by mode based upon the temperature of at least one other of the disk drives within the housing." These features are not taught or suggested by the cited references. Therefore, a rejection of amended claim 45 under

35 U.S.C. §103(a) would be unsupported. Further, because claims 46-54 depend directly or indirectly from claim 45, a rejection of these claims under 35 U.S.C. §103(a) would also be unsupported. Thus, these claims should be allowed.

Conclusion

In conclusion, Applicants respectfully assert that claims 1-11, 13 and 30-54 are allowable for the reasons set forth above, and that the application is now in a condition for allowance. Accordingly, an early notice of allowance is respectfully requested. The Examiner is requested to call the undersigned at 858-487-4077 for any reason that would advance the instant application to issue.

Dated this the ___ day of December, 2004.

Respectfully submitted,

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